

BABIL RAILWAY STATION
REHABILITATION
HILLA, IRAQ

SIGIR PA-05-019
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Special Inspector General for Iraq Reconstruction

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Babil Railway Station Rehabilitation in Hilla, Iraq

Synopsis

Introduction. This report was previously provided on a limited distribution basis only in Iraq to representatives of the Gulf Region Division of the U.S. Army Corps of Engineers and the Project and Contracting Office. In accordance with the revised policy of the Office of the Special Inspector General for Iraq Reconstruction, all project assessment reports are being issued publicly.

This project assessment was initiated as part of our continuing assessments of selected sector reconstruction activities for Facilities and Transportation. The overall objectives were to determine whether selected sector reconstruction contractors were complying with the terms of their contracts or task orders and also evaluate the effectiveness of the monitoring and controls exercised by administrative quality assurance and contract officers. This project assessment was conducted in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included a professional engineer and an auditor.

Project Assessment Objectives. The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties in order to enable appropriate action, when warranted. Specifically, we determined whether:

1. Project results will be consistent with original objectives;
2. Project components were adequately designed prior to construction or installation;
3. Construction or rehabilitation met the standards of the design;
4. The Contractor's Quality Control plan and the U.S. Government's Quality Assurance program were adequate; and
5. Project sustainability and operational effectiveness were addressed.

Conclusions. The assessment determined that:

1. The completed project will meet and be consistent with original task order objectives. Specifically, the rehabilitation work, including the repair of security, electrical, mechanical, architectural, and structural systems required for a functional railway station will be properly completed if pending items identified in the U.S. Army Corp of Engineers Quality Assurance Representative punch list are addressed.
2. This project is primarily renovation work of an existing facility. Although the contractor did not provide design drawing as required by the initial contract, this did not significantly influence the outcome of the project. Minimal design was required and was accomplished by the U.S. Army Corp of Engineers project manager and U.S. Army Corp of Engineers Quality Assurance Representative.

3. The rehabilitation of the Babil Railway Station appeared to meet the standards of the contract. This occurred because the U.S. Army Corp of Engineers project engineer and U.S. Army Corp of Engineers Quality Assurance Representative effectively monitored and supervised the rehabilitation efforts of the contractor. As a result, the Babil Railway Station renovation should result in a fully operational railway station.
4. The railway station contract specified a requirement for a Contractor Quality Control plan; however, a Contractor Quality Control plan did not exist. The U.S. Army Corp of Engineers Engineering Regulation 1110-1-12 and Project and Contracting Office Standard Operating Procedure CN-100 specified requirements for a Government Quality Assurance program. The U.S. Army Corp of Engineers Quality Assurance program was adequate. The U.S. Army Corp of Engineers Quality Assurance Representatives were on-site during rehabilitation and reconstruction events. Quality Assurance Representatives monitored field activities and completed daily Quality Assurance reports. The procedures in place ensured that potential construction deficiencies were detected, evaluated, and properly corrected, if necessary, in a timely manner.
5. Our site visit, along with a review of the contract file, and discussions with the U.S. Army Corps of Engineers Resident Engineer and Quality Assurance Representative, showed that the Babil Railway Station is an operational facility. Sustainability coverage under the current contract is adequate for the operation of the Babil Railway Station. A review of the Babil Railway Station showed that the railway station should be operational upon completion of the project, in accordance with the contract's specific objective to rehabilitate the railway station.

Recommendations and Management Comments

This report does not contain any negative findings. Therefore, management comments were not required.

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Introduction

Objective of the Project Assessment

The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties in order to enable appropriate action, when warranted. Specifically, we determined whether:

1. Project results will be consistent with original objectives;
2. Project components were adequately designed prior to construction or installation;
3. Construction or rehabilitation met the standards of the design;
4. Contractor's Quality Control Plan and the U.S. Government's Quality Assurance Program were adequate; and
5. Sustainability and operational effectiveness were addressed.

Pre-Site Assessment Background

Contract, Task Order, and Costs

The Babil Railway Station Rehabilitation project will be completed under Contract W914NS-05-C-0013. Contract W914NS-05-C-0013, dated 30 November 2004, was a contract in the amount of \$913,371.

Task Order (TO) TR-029D was originally a design/build type contract; however, the contract was to be re-negotiated to a fixed-price contract for TO TR-029D. There are currently three modifications to the initial contract.

- Modification # P0001, issued 4 December 2004, reflected administrative changes of the contract. No additional funding was added at that time. The modification delegated Federal Acquisition Regulation, Part 42, duties to the Administrative Contracting Officer assigned with the U.S. Army Corps of Engineers (USACE).
- Modification #P0002, issued 12 December 2004, reflected administrative changes of the contract. No additional funding was added at that time.
- Modification #P0003, issued 23 February 2005, reflected the Government contracting office's change from PCO to Joint Contracting Command-Iraq/Afghanistan. In addition, the contract price was reduced \$40,976 to \$872,395 because the prime contractor was novated and the Scope of Work (SOW) changed. Per the PCO Project Manager, the prime contractor was terminated for cause, and the contract was negotiated and awarded directly to the subcontractors.

Although the final contracting action included rehabilitation of ten rural railway stations within the Babil Governorate under TO TR-029D, this assessment addresses only the Babil Railway Station Rehabilitation project. The previous subcontractor is currently the prime contractor for the Babil Railway Station project. The cost for

completion of the Babil Railway Station Rehabilitation project is listed in Modification # P0003 at \$273,931.

Project Objective

The overall objective of the original contract task order was to “rehabilitate ten rural railway stations and one municipal railway station (Hilla) in the Governorate of Babil... [p]roject tasks include the on-site evaluation and subsequent repairs of each of the stations.” The specific objective for this project was to rehabilitate the Babil Railway Station, to include the repair of security, electrical, mechanical, architectural, and structural systems.

Description of the Facility (preconstruction)

The description of the facility (preconstruction) is based on information obtained from the PCO project manager, the Contract, and the USACE project files. Iraq’s railway system is predominately single track and therefore does not allow two-way rail traffic. Railway stations were constructed along the rail route and were used for staging crews, sidetracking trains, and for limited passenger services. The Babil Railway Station is located on the outskirts of the city of Hilla¹, approximately 100 kilometers south of Baghdad, Iraq. The Babil Railway Station was structurally sound, but due to neglect, was in need of rehabilitation. The Babil Railway Station has been and is currently an operating facility.

Scope of Work of the Task Order

The revised bill of quantities (BOQ), located within Modification P0004 of contract W914NS-05-C-0013, dated 6 August 2005, listed the specific items that required refurbishment or replacement. Based on the BOQ, the major tasks for the repair and renovation of the Babil Railway Station project included:

- Supply and install new roofing materials
- Supply and install exterior facing brick
- Supply and install electrical lighting and upgrade the electrical system
- Supply and install air conditioning units
- Supply and install false ceilings
- Repair or supply and install windows and doors
- Supply and install floor tiles.

Current Project Design and Specifications

The contract’s SOW included requirements for project design submittals and approval, if applicable. The SOW required submission of 15%, 30%, and 60% design drawings and specifications for review and approval from the sector Program Management Office. Requirements for all construction and rehabilitation

¹ Due to the various spellings for cities in Iraq, and in an effort to achieve standardization in SIGIR reports, Al Hillah, as noted in project documentation will henceforth be referred to as Hilla.

work included the use of the applicable standards including: the American Standards of Testing Materials, the American Association of State Highway and Transportation Officials, the American Concrete Institute, the International Building Code, the National Electric Code, the National Electric Safety Code and the American Welding Society.

Reported Project Work Completed and Pending

We determined the project's status prior to the site visit through discussions with the USACE Resident Engineer (RE) and Quality Assurance Representative (QAR), as well as a review of the PCO contract file. According to the 23 September 2005 USACE QA Report, the overall project was listed as 85.5% complete.

Project site work reported completed:

- Supply and install new roofing materials: 90% complete
- Supply and install exterior facing brick: 87% complete
- Supply and install electrical lighting and upgrade electrical system: 83% complete
- Supply and install air conditioning units: 86% complete
- Supply and install false ceilings: 85% complete
- Repair or supply and install windows and doors: 76% complete
- Supply and install wall and floor tiles: 94% complete

Project site work reported underway:

- The USACE project engineer and QAR developed a punch list of pending items to complete the contract. The punch list items included repairs or reworking of particular concerns and the final testing and commissioning of the air conditioning and electrical systems.

Project site work pending:

- All significant work has either been completed or is underway.

Site Assessment

On the 24th and 25th of September 2005, we performed an on-site assessment at the Babil Railway Station. On both days of the site assessment, work was not being accomplished by the contractor. The site assessment included an assessment of work completed; while work in progress and work pending were not evaluated. During the site assessment, numerous rooms where work was scheduled to be completed were not accessible, and there was no access to the roof. During the site assessment on 25 September 2005, the railway station manager and staff were on site. Only spot-checking of individual tasks was conducted.

Work Completed

Significant items of work completed included the installation of the following: exterior facing brick, lighting and upgrade of the electrical system, air conditioning

units, wall and floor tiles, and false ceilings. In addition, repair and installation of the windows, doors, and the station's roofing system was completed.

Supply and install exterior facing brick

The contract's BOQ required the supply and installation of 100 square meters (m²) of Shafqueem facing brick and 115 m² of brickwork. We observed new facing brick and brickwork on the complete front and rear sections of the Babil Railway Station and around the supporting columns of the front and rear breezeway area. Installation of facing brick appeared to be consistent with the requirements of the contract.

Site Photo 1 shows the facing brick on the rear wall of the Babil Railway Station and the columns.



Site Photo 1. Facing Brick on Rear Wall and Columns

Supply and install electrical lighting and upgrade electrical system

The contract's BOQ required the supply and installation of 124 double 2x40 watt (w) fluorescent luminaire type F-I interior lights and wiring, and the supply and installation of twelve outdoor 250 w type FL12 lighting fixtures. In addition, the BOQ required the electrical wiring of sixteen 24,000 British Thermal Unit (BTU) air conditioning (A/C) split units, two 30,000 BTU A/C split units, and four 36,000 BTU A/C split units. During the site assessment, we observed new exterior lighting fixtures, interior lighting fixtures, and wiring for the A/C split units. We did not note any deficiencies concerning the electrical lighting and electrical upgrades.

Site Photo 2 shows one of the exterior lighting units mounted on the backside of the Babil Railway Station. The recessed fluorescent lighting and false ceiling inside the Babil Railway Station can be seen in Site Photo 3.



Site Photo 2. Mounted Exterior Light Unit



Site Photo 3. Interior Recessed Lighting and False Ceiling

Supply and install air conditioning units

The contract's BOQ required the supply and installation of sixteen 24,000 BTU A/C split units, two 30,000 BTU A/C split units, and four 36,000 BTU A/C split units. We observed new split A/C units (condensing unit located on the exterior and cooling/blower unit in the interior) at the Babil Railway Station. Electrical connections were completed; however, operation of the A/C units was not verified. See Site Photo 4 shows the exterior condensing unit of 24,000 BTU LG Industries, LTD A/C split unit, which was located in the rear of the railway station. A cooling/blower unit mounting in an interior office of the railway station can be seen in Site Photo 5. Installation of A/C units appeared to be consistent with the requirements of the contract.



Site Photo 4. Exterior Split A/C Condensing Unit



Site Photo 5. Interior Split A/C Cooling/Blower Unit

Repair or supply and install windows and doors

The contract's BOQ required the supply and installation of thirty heavy wood doors and frames, eight new aluminum windows, and the repair of twenty-nine windows. During the site visit we observed installed windows, which appeared new, and new and/or refurbished doors. No deficiencies were noted; however, only a small percentage of the doors and windows were inspected.

The exterior wooden door can be seen in Site Photo 6. Site Photo 7 shows a rear exterior aluminum window.



Site Photo 6. Exterior Wooden Door



Site Photo 7. Rear Exterior Aluminum Window

Supply and install wall and floor tiles

The contract's BOQ required the supply and installation 1342 m² of ceramic and terrazzo floor tile and 178 m² of ceramic wall tile. During the site assessment, we observed installed tile in all three of the interior rooms visited. The Babil Railway Station Manager stated he was not pleased with the choice of tile and the tile surface was not cleaned properly. The USACE QAR on site during the assessment said the previous station manager and engineer selected the tile. The installation of tiles appeared to be consistent with the requirements of the contract.

Site Photo 8 shows the installed terrazzo floor tile in the center entry room inside the Babil Railway Station.



Site Photo 8. Terrazzo Floor Tile Located in the Center Entry Room

Supply and install false ceilings

The contract's BOQ required the supply and installation of 714 m² of false ceiling, consisting of Gypsum tiles on metal grid. During the site assessment, we observed installed false ceiling tile in all three of the interior rooms visited. The installation of false ceilings appeared to be consistent with the requirements of the contract. Site Photo 3 shows the false ceiling inside the Babil Railway Station.

Supply and install new roofing materials

The contract's BOQ required the supply and installation 1312 m² of new roofing, proofing, concrete tiles, and mastic. The roof was not accessible during the site assessments and therefore was not evaluated.

Work in Progress

The USACE project engineer and QAR developed a punch list of pending items to complete the contract. Punch list items include the repair and rebuild of previously accomplished work and the final testing and commissioning of the air conditioning and electrical systems. During the site assessment, we did not evaluate the punch list items.

Work Pending

All significant work has either been completed or is underway.

Project Quality Management

The Babil Railway Station contract specified a requirement for a Contractor Quality Control (CQC) plan; however, a CQC plan did not exist. In addition, the contractor did not produce daily Quality Control (QC) reports or maintain a QC deficiency log. The USACE Engineering Regulation 1110-1-12 and the PCO Standard Operating Procedure CN-100 specified requirements for a Government Quality Assurance program. The USACE QA program was adequate. The USACE QARs were on-site during rehabilitation and reconstruction events. The QARs monitored field activities and completed daily QA reports. The QA deficiency logs were maintained by the QARs. The QARs forwarded the QA reports to the USACE RE for review and verification of progress completed for payment approval. The procedures in place ensured that potential construction deficiencies were detected, evaluated, and properly corrected, if necessary, in a timely manner. In addition, the QAR's reports were sufficiently complete, accurate, and timely. Furthermore, QA reports included project specific or detailed photographs that reinforced the narrative information provided in reports.

Project Sustainability and Operational Effectiveness

Project Sustainability

Our site visit, along with a review of the contract file and discussions with the USACE RE and QAR, showed that the Babil Railway Station is an operating facility. Sustainability coverage under the current contract is adequate for the operation of the Babil Railway Station. The contract included providing the Babil Railway Station with warranties for all the mechanical, electrical, and/or electronic equipment. In addition, the contract certified all operations for 12 months at the Babil Railway Station.

Operational Effectiveness

A review of the contract's SOW showed that, if construction is completed in accordance with contract requirements, the project should result in an operating

railway station. This will satisfy the contract's specific objective, which was to rehabilitate the Babil Railway Station.

Conclusions

Based upon the field work performed during this assessment, we reached the following conclusions for assessment objectives 1, 2, 3, 4, and 5. Appendix A provides details pertaining to Scope and Methodology.

1. Determine whether project results will be consistent with original objectives.

The completed project will meet and be consistent with original task order objectives. Specifically, the rehabilitation work, including the repair of security, electrical, mechanical, architectural, and structural systems required for a functional railway station, will be properly completed if pending items identified in the USACE QAR punch list are addressed. This occurred primarily because the project was effectively managed by the USACE project engineer and QAR. The Babil railway station renovation should result in a fully operational railway station. Therefore, the original objective of the task order to renovate the Babil Railway Station should be met.

2. Determine whether project components were adequately designed prior to construction or installation.

This project was primarily a renovation of an existing facility. Although the contractor did not provide design drawings, as required by the initial contract, this did not significantly influence the outcome of the project. Minimal design was required and was accomplished by the USACE project manager and USACE QAR. The Babil Railway Station renovation should result in a fully operational railway station building.

3. Determined whether construction or rehabilitation met the standards of the design.

The rehabilitation of the railway station appeared to meet the standards of the contract. This occurred because the USACE project engineer and QAR effectively monitored and supervised the rehabilitation efforts of the contractor. As a result, the Babil Railway Station renovation should result in a fully operational railway station.

4. Determine whether the Contractor's Quality Control plan and the Government Quality Assurance Program were adequate.

The Babil Railway Station contract specified a requirement for a CQC plan; however, a CQC plan did not exist. The USACE Engineering Regulation 1110-1-12 and the PCO Standard Operating Procedure CN-100 specified requirements for a Government QA program. The USACE QA program was adequate. The USACE QARs were on-site during rehabilitation and reconstruction events. The QARs monitored field activities and completed daily QA reports. The QA deficiency logs were maintained by the QARs and forwarded to the USACE RE for review and payment approval. The procedures in-place ensured that potential construction deficiencies were detected, evaluated, and properly corrected, if necessary, in a timely manner. In addition, the QAR's reports were sufficiently complete, accurate, and timely. Furthermore, QA reports included project specific or detailed photographs that reinforced the narrative information provided in reports.

5. Determine if project sustainability and operational effectiveness were addressed.

Our site visit, along with a review of the contract file and discussions with the USACE RE and QAR, showed that the Babil Railway Station is an operating facility. Sustainability coverage under the current contract is adequate for the operation of the Babil Railway Station. The contract required warranties for all mechanical, electrical, and/or electronic equipment. A review of the Babil Railway Station showed that the railway station should be operational upon completion of the project, in accordance with the contract's specific objective to rehabilitate the railway station.

Management Comments

This report does not contain any negative findings. Therefore, management comments were not required.

Appendix A. Scope and Methodology

We performed this project assessment from September through October 2005 in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included a professional engineer and auditor.

In performing this Project Assessment we:

- Reviewed contract documentation, including the Independent Government Estimate, Scope of Work, Contract, and Contract Modifications;
- Reviewed the design package (drawings and specifications), Quality Assurance Plan, Quality Control Plan, contractor's daily Quality Control reports, and Quality Assurance Representative reports;
- Interviewed the Project Manager, Project Engineer, Quality Assurance Representative, and the contractor's quality control manager and on-site staff; and
- Conducted and documented results of an on-site assessment of Babil Railway Station, located in Hilla, Iraq.

Appendix B. Acronyms

A/C	Air Conditioning
BOQ	Bill of Quantities
BTU	British Thermal Unit
CQC	Contractor Quality Control
m ²	Meters squared
PCO	Project and Contracting Office
QA	Quality Assurance
QAR	Quality Assurance Representative
RE	Resident Engineer
SOW	Scope of Work
TO	Task Order
USACE	U.S. Army Corps of Engineers

Appendix C. Project Assessment Team Members

The Office of the Assistant Inspector General for Inspections, Office of the Special Inspector General for Iraq Reconstruction, prepared this report. The principal staff members who contributed to the report were:

Michael Stanka, P.E.

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